PADSDZ 15 (1–12) 1–364 (1978)
ISSN 0306–1396

Proceedings

of the Analytical Division of

The Chemical Society

Volume 15 1978

Published by
THE CHEMICAL SOCIETY
BURLINGTON HOUSE, LONDON, W1V 0BN

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Printed by Heffers Printers Limited Cambridge England

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Paints: BS 5598: Methods of Sampling and Tests for Halogenated Hydrocarbons. Part 1. Sampling of Liquid Products. British Standards Institution, 358.
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Spectra: Low-temperature infrared —— of pharmaceuticals. Brickell, 343.
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Spectrometry, nuclear magnetic resonance: Detection of an epimer in a novel aminoglycoside. Gifford, 344.
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Trace analysis: Applications and problems of the inductively coupled plasma in the chemical industry. Newman and Farrow, 311.
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